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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,253	07/03/2003	Pieter G. Einthoven	02-0889	4882

64722 7590 10/11/2007

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EXAMINER	
TO, TUAN C	

ART UNIT	PAPER NUMBER
3663	

NOTIFICATION DATE	DELIVERY MODE
10/11/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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PATENTADMIN@BOEING.COM

Office Action Summary	Application No.	Applicant(s)	
	10/613,253	EINTHOVEN ET AL.	
	Examiner	Art Unit	
	Tuan C. To	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,19-21,46-54 and 70-73* is/are pending in the application.

4a) Of the above claim(s) *7,10,13,14,17,19,20 and 71-73* is/are withdrawn from consideration.

5)☒ Claim(s) *21 and 46-54* is/are allowed.

6)☒ Claim(s) *1-4,8,9,11,12 and 70* is/are rejected.

7)☒ Claim(s) *5,6,15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 9, 11, 12, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rollet et al. (US 5863012A) and in view of Ho (US 5901927A).

With respect to claim 1, The U.S. reference to Rollet et al. disclose a cyclic stick system that give a helicopter speed stability, wherein the forces is applied on the cyclic

stick so that to accelerate (or decelerate) and maintain a new higher (or lower) speed (Rollet et al., column 2, lines 58-64). Furthermore the cyclic stick Mcy (see Rollet et al., figure 1) sends a signal a control signal to the flight control device CDV via a link e3. This solves the vertical state of the helicopter is controlled via the flight control device CDV. It concludes that Rollet et al. inherently discloses that constant vertical state is controlled.

Rollet et al. disclose a cyclic stick system for a helicopter, in which the cyclic stick is pushed or pulled at forces so that to accelerate or decelerate and then maintain a new higher or lower speed. Thus, Rollet et al. inherently disclose a maximum of the inceptor position limits in order to maintain the vertical state.

Rollet et al. teaches a cyclic stick system that control the speed stability of a helicopter in which maximum vertical inceptor position limits are based on the forces applied on the cyclic stick.

Rollet et al. fails to teach the following: "determining maximum acceleration limits for the longitudinal or lateral axis corresponding to the maximum allowable vertical inceptor position limits.

The new cited reference to Ho teaches a system/method for use with an aircraft to prevent an aircraft part from striking the ground during near ground maneuvers, in which the tail strike pitch attitude limit is set to the maximum allowable pitch attitude for the autopilot mode in according the limited pitch command signal from pitch command limit box (122) (Ho, column 5, lines 6-24).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the aircraft system/method as taught by Rollet et al. to include the teaching of maximum acceleration limits as taught in Ho for providing the advantage of maintaining the aircraft at an allowable elevation so that to maintain the aircraft in a desired flight path. This prevents great damage with other aircraft or an unwanted ground strikes.

With regard to claims 2 and 70, Rollet et al. teaches "acceleration limits are pitch and roll attitude limits" (Rollet et al., abstract).

With regard to claim 3, Rollet et al disclose that cyclic stick system for a helicopter, in which cyclic stick is pushed or pulled at forces so that to accelerate or decelerate and then maintain a new higher or lower speed. Thus, Rollet et al. inherently disclose the prediction of increasing or decreasing in pitch and roll attitude limits.

With regard to claim 4, Ho teaches maximum acceleration limited as represented as control inceptor position limits (Ho, column 5, lines 6-19).

With regard to claim 9, Ho teaches maximum acceleration limits (pitch attitude limit, roll attitude limit) are inherently based on the transfer of potential and kinetic energy.

With regard to claim 11, Ho teaches maximum acceleration limits (pitch attitude limit, roll attitude limit) are determined using at least two methods, and the most restrictive result from the two methods are utilized (column 4, lines 11-59).

With regard to claim 12, as taught in Rollet et al, the cyclic stick system is provided to maintain the stability for the helicopter in vertical in terms of forces on the

cyclic stick so that accelerate and maintain a new higher (or lower) speed. Thus, Rollet et al. inherently discloses constant vertical altitude, constant vertical velocity, and constant flight path angle so that the stability of the helicopter in vertical is maintained.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rollet et al. (US 5863012A), Ho (US 5901927A), and further in view of Tomio et al. (US 6334592B1).

With regard to claim 8, the Rollet et al and Ho, as in combination, suggests the limitations of claim 1 except for said limits that are provided to a software limiting system.

The reference to Tomio et al. has been cited as teaching a flight control apparatus for helicopter that includes the teachings of SAS (stability augmentation system) as to be identical to the software limiting system as claimed by the applicant.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Rollet et al, Ho, and Tomio et al. in order to improve the control characteristics of the helicopter and reduce the cross coupling between the longitudinal and lateral axes.

Allowable Subject Matter

The examiner has realized the prior art has failed to disclose at least the limitations as recited in claim 21 and 46. Thus, claims 21, and 46-54 are set in a condition of allowance.

Claims 5, 6, 15, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Amendment

The applicant traversed the rejection dated on 06/18/2007.

According to the applicant, the cited references to Rollet, Ho, taken individidually or in combination, fail to disclose all the limitation of claim 1.

The examiner believes the cited reference to Rollet teaches "determining at least one vertical inceptor position required to maintain a vertical state via a controller", and "determining maximum allowable vertical inceptor position limits for desired operation of the vehicle that allow maintaining said vertical state".

Rollet teaches a cyclic stick system giving a helicopter speed stability including a cyclic stick that can be shifted by a pilot in order to provides longitudinal static stability so that to accelerate (or decelerate) and maintain a new higher (or lower) speed (Rollet, abstract). In the Rollet, the cyclic stick MCy (figure 1) associates with the transducer Tcy that converts the positions of the cyclic stick in terms of pitch attitude into an electrical signal cy, sent to the electric flight-control device CDV. According to this, in order to maintain a new higher (or lower) speed the cyclic stick is pushed or pulled to a position required to maintain a vertical state of the helicopter, including a maximum allowable position. In Rollet, a collective pitch lever Lco is disclosed (see column 5, lines 42-45), and the collective pitch lever can be used in increasing or decreasing the pitch angle of the rotor blade. However, Rollet does not disclose determining maximum

acceleration limits (pitch attitude limit, roll attitude limit) for the longitudinal or lateral axis corresponding to the maximum allowable vertical inceptor position limits.

The second reference to Ho has been cited as teaching an aircraft in which the maximum acceleration limits have been disclosed.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the aircraft system/method as taught by Rollet et al. is modified to include the teaching of maximum acceleration limits as taught in Ho for providing the advantage of maintaining the aircraft at an allowable elevation so that to maintain the aircraft in a desired flight path. This prevents great damage with other aircraft or an unwanted ground strikes.

In addition, the examiner believes the combination of Rollet et al, Ho, and Tomio et al. would improve the control characteristics of the helicopter and reduce the cross coupling between the longitudinal and lateral axes.

Conclusions

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

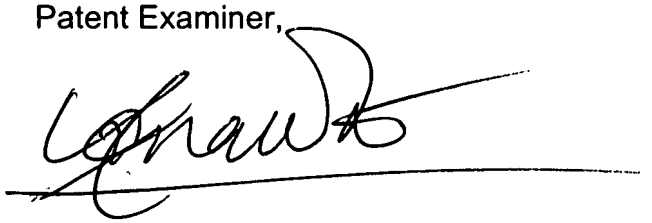
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan C To whose telephone number is (571) 272-6985. The examiner can normally be reached on from 8:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner,



Tuan C To

October 1, 2007